



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/563,710

10/10/2006

Gerald A. Daniel

9052-235

1603

20792 7590 06/18/2009
MYERS BIGEL SIBLEY & SAJOVEC
PO BOX 37428
RALEIGH, NC 27627

EXAMINER

BOMAR, THOMAS S

ART UNIT

PAPER NUMBER

3676

MAIL DATE

DELIVERY MODE

06/18/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/563,710	Applicant(s) DANIEL ET AL.	
	Examiner Shane Bomar	Art Unit 3676	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 May 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10, 12-18 and 21-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 12-18 is/are rejected.
- 7) ☒ Claim(s) 21-23 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 May 2009 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on May 28, 2009 has been entered.

Claim Rejections - 35 USC § 102

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. Claims 1-6, 8-10, and 12-18 are rejected under 35 U.S.C. 102(b) as being anticipated by US 4,354,560 of Johnson.

Regarding claim 1, Johnson discloses a method for drilling a bore EH through a target including a ready made through bore PH, the method comprising: advancing a drill bit EB into the target along the ready made through bore in a direction of advancement from a region where a drill device arranged to drive the drill bit is located to a further region, such as at the surface; injecting a directing gas through at least one aperture 181a in the drill bit so that gas ejected therefrom is directed in the direction of advancement (Figs. 2b, 4b, and 8); and as the bore is drilled, directing substantially all waste material along the ready made through bore in the direction of advancement for at least a short period of time via the gas to the further region at the surface (e.g., the gas leaves the bit in a downward direction (direction of advance), entrains waste while still traveling downward, and is then directed back upward due to hitting the bottom

Art Unit: 3676

of the hole and/or due to the vacuum action), wherein the waste material will eventually be directed in a direction opposite to the direction of advancement (but not before all of it inherently travels in the direction of advance first).

Regarding claim 2, at least one cutting element C of the drill bit defines an internal diameter of the bore developed in the target as the bit advances (Fig. 2b).

Regarding claim 3, the method as claimed in claim 2 further comprising: providing a ready made bore PH having an existing diameter less than the internal diameter in the target; and directing at least some waste material along the ready made bore during the step of advancing the drill bit because at least some of the material will inherently fall into the bore PH due to gravity.

Regarding claim 4, based on the discussion in claim 1 above, it is clear that substantially all of the waste material will be first directed in the direction of advancement, and then shortly thereafter be directed in the opposite direction.

Regarding claim 5, gas in the form of air is used so this is dry drilling (col. 5, lines 14-17).

Regarding claim 6, as is notoriously known in the art, the formation being drilled will not be homogenous at all times, thus at least two different materials will be drilled through simultaneously (e.g., sandstone and another metaphoric rock may be encountered simultaneously).

Regarding claim 8, the dimensions of the drill tip appear to be inherently selected for providing consistent particle size, having a largest cross-section below a predetermined threshold limit, of ejected waste material (Figs. 2b and 4b).

Art Unit: 3676

Regarding claim 9, Johnson discloses a drill bit for drilling a bore through a target via a drilling process, comprising: at least one cutting surface arranged to cut a bore having an internal diameter through the target as the drill bit advances into the target from a region where a drill device arranged to drive the drill bit is located to a further region at the surface; and at least one aperture 181a in the drill bit for permitting a directing gas to be injected in a direction of advancement of the drill bit to thereby direct substantially all waste material, formed as the bore is drilled, in the direction of advancement for at least a short period of time (see discussion in claim 1 above): wherein the drill bit further comprises a drill tip C including the cutting surface and a shaft portion 17 for connecting the drill tip to a drill device and the at least one aperture 181a is formed to extend radially outwardly in the shaft portion (Figs. 4b and 8).

Regarding claim 10, the cutting surface cut a bore EH having a diameter wider than the existing bore PH (Fig. 2b).

Regarding claims 12-14, the cutters C have progressively larger cutting portions, wherein the smallest cutting portion is disposed at a forward region and acts as a pilot and chip breaker since it encounters material in the ready made bore PH first (Figs. 1b, 2b, and 4b).

Regarding claims 15-17, there is at least one air passage 181 in a cylindrical shell body of the shaft 17 extending longitudinally through the drill bit for providing a route for gas to flow along from a rear portion of the drill bit to the at least one aperture, and at least 17c connects the shaft and tip together (Figs. 4b and 8).

Regarding claim 18, Johnson discloses a drill for use with a drill bit arranged for drilling a bore EH through a target, comprising: a drill bit comprising: at least one cutting surface C arranged to cut a bore having an internal diameter of EH through the target as the drill bit

Art Unit: 3676

advances into the target from a region where a drill device arranged to drive the drill bit is located to a further region at the surface; and at least one aperture 181a in the drill bit for permitting a directing gas to be injected in a direction of advancement of the drill bit to thereby direct substantially all waste material, formed as the bore is drilled, in the direction of advancement for at least a short period of time (see discussion in claim 1 above); wherein the drill bit further comprises a drill tip including the cutting surface and a shaft portion 17 for connecting the drill tip to a drill device and the at least one aperture is formed extending radially outwardly in the shaft portion; a rotor shaft 24 arranged to rotate when driven; a motor 26 arranged to drive the shaft; connection means P for connecting the drill bit to the rotor shaft; a gas inlet 10 arranged to receive pressurized gas from a pressurized gas source, the source being inherent; and gas directing means A/159 arranged to inject gas from the inlet to the drill bit thereby providing a directing gas flow in a direction of advancement as the drill bit drills the bore (Figs. 1, 2b, 4b, and 8).

Claim Rejections - 35 USC § 103

4. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson in view of US 5,580,188 of Nowak.

Johnson teaches a method that comprises drilling through a ready made bore PH. However, it is not specifically taught that the target comprises a wall composed of a first material and a pipe composed of a different material extending through the wall, the internal bore of the pipe defining a ready made bore along which the drill bit is advanced.

Nowak teaches a method for drilling a bore similar to that of Johnson. It is further taught that as the bore is drilled, an existing pipe 10 and the surrounding formation are simultaneously

Art Unit: 3676

bored (Figs. 1 and 2). Thus, at the time of the invention it would have been obvious to one of ordinary skill in the art to try the method of Johnson in the existing pipe of Nowak, as a person with ordinary skill has good reason to pursue the known options within his or her technical grasp.

Allowable Subject Matter

5. Claims 21-23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

6. Applicant's arguments filed May 28, 2009 have been fully considered but they are not persuasive. Contrary to the Applicant's allegations, the Examiner respectfully contends that substantially all of the waste material is first directed in the direction of advancement, wherein it then hits the bore bottom and is all directed opposite the direction of advancement to the further region at the surface. However, incorporation of new claims 21-23 into each of the corresponding independent claims will clearly define over the Johnson reference.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shane Bomar whose telephone number is (571)272-7026. The examiner can normally be reached on Monday-Thursday from 6:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer H. Gay can be reached on 571-272-7029. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3676

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Shane Bomar/

Primary Examiner, Art Unit 3676